Social Structure and Informal Social Control in Rural Communities*

Yuh-Yuh Li
Postdoctoral Researcher
Research Center for Promoting Civic Literacy
Center for General Education
National Sun Yat-Sen University
70 Lien-Hai Road, Kaohsiung, 804, Taiwan

Contact author: Yuh-Yuh Li – Yuhyl1210@gmail.com; 886-7-525-2000, ext. 5859

Abstract

The purpose of this study is to examine the relationship between social structure and crime in rural counties of the United States. Social structures are assumed to be associated with informal control of crime, and as well, it is assumed that structural changes in rural communities influence changes in the level of informal social control of crime, hence, crime itself. Social disorganization theory provides a useful macro-level study frame for this study. The county is the study unit. Data from 2,050 non-metropolitian counties were collected, using three different sources: the census, the FBI *Uniform Crime Report*, and the USDA Economic Research Service. US Counties data files of the US Bureau of Census provide the demographic and social economic variables for 1990 and 2000.The results show that social structural change in rural communities reduces social control in rural communities to some extent. The applications of findings are discussed in terms of future research on crime in rural communities.

Keywords: Social Disorganization Theory, Informal Social Control, Rural Communities, Social Change

**Support for this research comes in part from the Ohio Agricultural Research and Development Center, The Ohio State University, Hatch Project OHO01078.*

Introduction

Criminologists, rural sociologists, and sociologists have traditionally viewed rural communities as places with highly cohesive social relations, law- abiding residents, low tolerance of deviance, and hence, lower rates of crime. To date, more and more scholars and researches have begun to challenge the generalization that all, or nearly all, rural places have low crime rates, and have begun more in-depth investigations of the social structural and economic factors associated with variations in rural crime (Cancino 2005; Deller & Deller 2010; Kaylen & Pridemore 2011; Jobes et al. 2004; Rephann 1999; Weisheit, Falcone & Wells 2006).

Recently, several high profile crime events were reported in newspapers that occurred in nonmetropolitian locations. These stories varied in content, including the production, processing and trafficking of drugs, drug addiction among rural people, human trafficking, violence against women and children, homicides, high ticket property offenses, and other crimes that frequently make front page, headline news.

These incidents frequently surprise journalists and readers alike because they challenge the notion of a peaceful and organized countryside, and raise concerns about safety and security among people who live in rural communities. Hence, it is important to ask questions about “the why” and “the how” of rural crime. The purpose of this study is to bring evidence to bear on why some rural places have more crime than other rural localities, that is, why there are variations in crime across different kinds of rural places. Further, if crime varies with rural community characteristics, to what extent must criminological theories, such as social disorganization (whose origins are with the Chicago School of Sociology), be modified to account for the empirical realities that lie beyond the city limits?

A distinction must be drawn between individual-level versus community-level approaches to the study of rural crime. The former focuses on the behavior and motivations of individual offenders, and the reactions of individual victims. The latter is an ecological focus, examining variations of crime in space and time, and the factors associated with these differences.

Community as an appropriate unit of study has gained renewed attention over the past several decades within the field of criminology (Bursik 1986; Reiss 1986; Sampson & Groves 1989; Sampson, Morenoff, & Gannon-Rowley 2002, Silver 2000; Warner 2007).

As criminologists and rural sociologists have turned their attention to the ecology of crime, scholarly attention to crime and rural places also emerged (Arthur 1991; Barnett & Mencken 2002; Donnermeyer & DeKeseredy 2008; Jobes et al. 2004; Kaylen & Pridemore 2011; Rephann 1999; Wilkinson 1984a 1984b). The focus on rural crime began in part with the interest of rural sociologists about the various impacts of rapid population and economic growth associated with energy development in small, western towns (Freudenburg & Jones 1991; Krannich, Berry & Greider 1989; Krannich, Greider & Little 1985; Seydlitz et al. 1993; Wilkinson et al. 1984). This has blossomed into a more general interest in rural crime vis-à-vis the relationship of social change and its impact on rural peoples and places (Arthur 1991; Barnett & Mencken 2002; Cancino 2005; Deller & Deller 2010; Donnermeyer, Jobes & Barclay 2007; Jobes et al. 2004; Kowalski & Duffield 1990; Lee, Maume & Ousey 2003; Osgood & Chambers 2000; Rephann et al. 1999; Resig & Cancino 2004; Wells & Weisheit 2004; Wilkinson 1984a, 1984b). Both sets of literature share a common conceptual root, which is the utilization of such concepts as *gemeinschaft*, cohesion, integration, collective efficacy, and social capital to describe the structural characteristics of rural places in relation to crime (Deller & Deller 2010; Donnermeyer 2007; Donnermeyer & DeKeseredy 2008; Sampson, Raudenbush & Earls 1997).

Rural America does not exist in a vacuum, immune from the greater social forces affecting America's urban centers. As well, crime as it is manifested in nonmetropolitian areas is also related to the economic and social welfare of rural places and rural peoples. It could be argued that locality is neither a guarantee of variation in rural community security or insecurity, that is, of low or high rates. The reason for this is that external factors may be more important for explaining crime rate variations across smaller places than internal factors (Donnermeyer 2007; Wilkinson 1984a, 1984b). Crime variations may be influenced more by regional than local factors, hence, crime rate differences across rural communities in the same region are negligible. However, it could be counter-argued that macro-level structural features of American society influence crime at the local level by affecting how the social and economic dimensions of specific communities mediate local expressions of crime.

A Macro-Level Perspective on Informal Social Control

The research question in this study is the role of place (community) on crime in nonmetropolitan America? Questions about place are asked by all criminologists interested in the ecology of crime because they seek to understand why there are high and

low crime areas in places of all types, including urban, suburban, and rural localities (Barnett & Mencken 2002; Bouffard & Muftić 2006; Kaylen & Pridemore 2011; Jobes et al. 2004; Lee et al. 2003; Wells & Weisheit 2004; Osgood & Chambers 2000; Reisig & Cancino 2004; Sampson, Raudenbush & Earls 1997).

In order to answer this question, scholars suggest that we should "deconstruct categories such as inner city, urban, suburban and rural so that underneath the myths we can see the complexity of the social structures and relations which explain crime and criminality in different places" (Wiles 1999:6). The present study adopted social disorganization theory as a framework to examine the structural factors of crime in nonmetropolitan U.S. counties. Social disorganization theory was adopted to guide the formulation of hypotheses and the analysis because it assumes that social structure influences social networks and social institutions and how they control the behavior of individuals, therefore, there should be a relationship with crime. Hence, social disorganization theory provides both a theoretical and a methodological framework for an ecological or macro-level study that focuses on such structural features as population size, family structure, socioeconomic status, residential instability, and ethnic heterogeneity.

An ecological approach focusing on a community's capacity to exercise social control can be traced back to the Chicago School of Sociology. Formulating social disorganization theory, they assumed that crime was based on a lack of shared values and beliefs among members of a community, and an inability to solve common problems (Bursik & Grasmick 1993; Jobes et al. 2004; Osgood & Chambers 2000; Sampson & Groves 1989). However, the general concept of macro-level sources of social control harkens back to theorists such as Durkheim (1897), who refers to the ability of societies and communities to realize common values which unite its members. As such, social disorganization theory focuses on those characteristics that refer to systematic social relationships that strengthen or weaken social control (Bursik & Grasmick 1993). Osgood and Chambers (2000) summarize three kinds of social relationships in a community as derived from Hunter et al. (2002) and Bursik and Grasmick (1993) that influence social control: private order, parochial networks, and public order. First, the private order is based on intimate, informal primary groups capable of controlling unacceptable behavior. Second, parochial networks are the broader local interpersonal networks and their relationships to local institutions, such as schools, churches and civic groups. Third, the public order is an external resource related to community-level norms which influences social control through citizens' reactions to prior criminal events which take place in a community. Wilkinson (1984a 1984b) explains lower rates for most crimes in many rural

communities because of the predominance of strong social ties and the lack of weak social ties, hence, he taps into these three sets of relationships in his work. He argues that more dominant strong social ties in rural communities makes these places less likely to see an increase in crime even if they exhibit high rates of family disruption, poverty and other forces.

The focus of social disorganization theory is the relationship of place-based characteristics to crime. It assumes that aggregate level characteristics, such as population stability or the proportion of two-parent families, for example, are indicators of a community's cohesion and common identity. In nonometropolitian areas, criminologists and rural sociologists see a variety of ways that cohesion may be threatened, including rapid population and/or economic growth, growing urbanization, high levels of unemployment and persistent poverty, and a variety of other structural-level social and economic conditions (Arthur 1991; Carcach 2000a; Jobes 1999; Kaylen & Pridemore 2011; Krannich et al. 1985; Lee, Maumee & Ousey 2003; Osgood & Chambers 2000; Reisig & Cancino 2004; Rephann 1999; Spano & Nagy 2005;Wells & Weisheit 2004;Wilkinson 1984a, 1984b; Wood 1942). Many scholars of rural life also point to the diffusion of urban culture and values as a basic, long-term shift that influences individual behavior and the integration of individuals and groups in nonmetropolitian localities (Fischer 1980; Wilkinson 1984a).

Classic sociological theories, including functionalism and conflict, recognize that broad social structural forces and long-term change impose basic limits on the capacity of local institutions and organizations to control the behavior of residents, such as through localized versions of social norms, social ties, and community identity (Anderson & Dyson 2002; Jacoby 1994). Hence, criminological theories of place provide a useful application of these basic sociological principles in ways that allow researchers to develop appropriate research questions and instigate empirical studies to examine the specifics about how these social forces are related to crime (Anderson & Dyson 2002).

Many interpretations of classic sociological theories and concepts from the nineteenth century by Emile Durkheim and Ferdinand Tönnies, which to some extent continue to be used into this new century, would see intrinsic differences in levels of social disorganization between rural and urban areas. These views assume that social disorganization is never a major feature of nonmetropolitian or rural areas, especially when compared to urban areas, because smaller and less densely populated areas exhibit more fully integrated social relations between peoples and groups (Weisheit &

Donnermeyer 2000). However, the assumption that there are immutable differences between rural and urban areas, such that rural areas automatically have both less social disorganization, more informal social control and less crime, is challenged by a great deal of new criminological literature that has developed over recent decades in the US and elsewhere (Donnermeyer 2007).

As already mentioned, scholars from the Chicago School of Sociology observed the ecological and structural evolution of areas inside the city and concluded that different neighborhoods manifest different rates of crime, and that an area's crime rate changes over time concurrent with changes in its social and economic characteristics (Anderson & Dyson 2002; Brantingham & Brantingham 1981; Davies 2006). More recently, scholars have applied the tenets of social disorganization theory to rural areas, examining crime rate variations with the social and economic traits of locations with smaller populations (Kaylen & Pridemore 2011; Jobes et al. 2004; Reisig & Cancino 2004; Spano & Nagy 2005; Wells & Weisheit 2004; Wilkinson 1984a, 1984b).

Social disorganization theory attempts to explain crime rate variations across places by the social structural and socioeconomic factors that are presumed to be associated with the capacity of local social groups and institutions to exercise informal social control. The model in this present study is built from the slowly growing body of findings that have applied social disorganization theory to the study of crime within and between rural communities (Barnett & Mencken 2002; Jobes et al 2004; Jobes et al 2005; Osgood & Chambers 2000; Rephann 1999; Wells & Weisheit 2004; Wilkinson 1984a, 1984b).

The advantage of social disorganization theory is that it is appropriate for a community level study of crime. However, this reliance poses two potential disadvantages. First, social disorganization theory is dependent on assumptions about the casual relationships between social structural and socioeconomic factors and crime that have mostly been tested in the urban milieu. Hence, since the origin of assumptions behind the theory arose from urban studies of crime, to what extent is it valid and applicable to rural communities (Donnermeyer & DeKeseredy 2008)? Second, since it would be prohibitively expensive to directly observe and measure social organization through participant observation, key informant interviews or other means of qualitative data collection across a large sample of communities (rural, urban, or suburban), the success of an empirical study using census information and official crime data must rely on the validity of the theory. However, almost all the statistical studies employing social disorganization theory, whether the focus is rural or urban, use "proxy" measures to

indicate the capacity of a community to solve problems and control the behavior of its members (Jobes et al. 2005). Hence, a more thorough examination that allows for greater scrutiny of proposed relationships of these proxy measures to crime rates in rural communities, and for revision of the theory, is possible if a variety of different statistical analyses is conducted.

This study includes two primary objectives. One is to test for the association of spatial variations in crime rates and differing social and economic characteristics of places. Another purpose is to test for temporal variations in crime rates. The temporal variation will be explored by utilizing crime data between 2000 and 2002 and social structural data in 1990 and 2000. This method for organizing the data allows for the analysis of time-invariant effects of social structure and crime within diverse rural places. As well, it will be possible to examine the effect of changes in place-based characteristics on crime within this period.

The social structural and socioeconomic correlates chosen in this study follow contemporary empirical studies by Osgood and Chambers (2000), Barnett and Mencken (2002), Jobes et al. (2004), and Bouffard and Muftić (2006), among others. For example, in the study by Osgood and Chambers (2000), the focus was on juvenile violence in 264 nonmetropolitan counties of four states. Six structural characteristics were used to predict violent crime, including socioeconomic disadvantage, residential instability, ethnic heterogeneity, family disruption, population density, and proximity to metropolitan counties. They found that poverty and unemployment had no effect on juvenile violence but other correlates were consistent with the assumptions of social disorganization theory. Jobes et al. (2004) used similar measures in their study of crime of rural Australia. They concluded that social structural factors, based on social disorganization theory, can explain variations in crime in Australia's rural areas, even though the theory originated from the study of crime in urban America.

Methodology

Data Sources

The data comes from three different sources: the census, the FBI *Uniform Crime Report*, and the USDA Economic Research Service. US Counties data files of the US Bureau of Census provide the demographic and social economic variables for 1990 and 2000. The *Uniform Crime Report* provides county crime rates from 2000 through 2002, as recalculated by the National Archive of Crime Data from the University of Michigan.

The classification of nonmetropolitan counties based on the Economic Research Service (ERS) of the U.S. Department of Agriculture Rural-Urban Continuum Codes. Codes 4 through 9 designate the 2,052 out of 3,142 counties (63.3%) defined as "non-metropolitian". In this study, a small number of counties with populations less than 500 were excluded. Other counties were excluded because of a low coverage index score for crime through the FBI's *Uniform Crime Report*. A total of 1,541 nonmetropolitan counties were used in this analysis. Regression analyses were used in examining various hypotheses. I apply SPSS programming for statistical analysis.

Concepts and Measurement

Crime rate: A crime rate was calculated as the number of criminal events "known to the police" for various offenses against people or property, divided by the population of the area. The crimes classified as Part I offenses in the *Uniform Crime Report* published by the Federal Bureau of Investigation (U.S. Department of Justice, 2000-2002) were used for the analysis in this study. Two standards were set in validating FBI data: (1) the coverage index; and (2) the coverage of population reporting the crime.

Population Size and Population Density: Density is the population per square mile in a county. Population size and density have been used as proxy measures for the level of strong social ties among communities. For example, Wilkinson (1984a, 1984b) argues that rural communities with less population and population density naturally lead rural residents to form social networks that contain a preponderance of strong social ties. The impact of a breakdown of strong social ties in small and less density populated communities is an increase in crime rates (Barnett & Mencken 2002; Carcach 2000b; Jobes et al. 2004; Wells & Weisheit 2004).

Ethnic Heterogeneity: Ethnic heterogeneity was measured by the index of diversity, or the GINI index. The GINI index is computed as $1-\sum_i P_i^2$, where P_i is the proportion of the ethnic population in a county (Blau 1977; Cao 2004; Osgood & Chambers 2000; Sampson 1984). There are six ethnic groups considered in calculating the GINI index: White, Black, Indigenous, Asian, Hispanic, and others. Ethnic heterogeneity is also an indicator of social integration at a place, with the presumption that a high score reflects a more segmented population and a greater chance for cultural conflicts to emerge. For example, Osgood and Chambers (2000) concluded that ethnic heterogeneity predicts a higher rate of juvenile violence in nonmetropolitan areas. Wells and Weisheit (2004)

found that higher racial diversity was related to high rates of violent and property crime for all counties.

Residential Instability: The proportion of owner-occupied housing was used to indicate residential instability and is a frequently employed indicator by researchers who apply social disorganization theory to the study of place and crime (Jobes et al. 2004; Osgood & Chambers 2000; Rephann 1999; Wells & Weisheit 2004). Lower ownership designated greater residential instability. In the past, residential instability has been used to measure the social identity of residents with their community (Jobes et al. 2004; Rephann 1999; Wells & Weisheit 2004).

Family Disruption: Three variables were adopted for measuring family disruption. They included the proportion of high school drop outs, the proportion of solo parent families (Bouffard & Muftić 2006; Wells & Weisheit 2004), and the proportion of separated parent families (Jobes et al. 2004). High school drop outs were represented by the proportion of youth in the 16 to 19 year age range who are not in school. Solo parent families were measured by the proportion of single parents with children 18 years and younger. Separated family was defined as the proportion of families having been separated among the population aged 15 years and over.

An Index of Family Disruption was created by combining the three variables, a procedure that was previously used by Barnett and Mencken (2002) in their study of social disorganization and rural crime. The same variables in this study had a Cronbach's reliability coefficient of 0.749 in 2000 and 0.725 in 1990, which is similar to the results of Barnett and Mencken (2002). The Index of Family Disruption for each county was a scored number determined by factor analysis (a regression method that provides a score based on weights assigned to all three variables). Before conducting the factor analysis, the variables were standardized as z-scores. The factor loading for each variable in 1990 was .645 for the proportion of high school drop outs, .866 for the proportion of solo parent families, and .890 for the proportion of separated parent families. The factor loading for each variable in 2000 was .719 for the proportion of high school drop outs, .862 for the proportion of solo parent families, and .864 for the proportion of separated parent families.

Socioeconomic status (SES): The socioeconomic status of a place was measured by five Census variables: the proportion of the population living in poverty, the proportion of the civilian labor force that is unemployed, median individual income, median household

income, and the proportion of the population with an associate or 2-year college degree or higher. The socioeconomic status of a community represents the kinds of human, social, and financial resources that can be used to solve social problems, and presumably, creates greater social cohesion or integration in a community, hence, greater social control. This can be seen in the study by Lee et al. (2003) of the relationship between homicide and socioeconomic disadvantage. Lee et al. (2003) concluded that socioeconomic disadvantage leads to an increase in homicide rates by reducing the ability of a community to exercise effective social control.

Except for the proportion of the labor force unemployed, the four variables were combined as an index of socioeconomic status because of their high factor loadings. Employing the same procedure used to construct the index of family disruption, those four variables had a Cronbach's reliability coefficient of 0.843 in 2000 and 0.841 in 1990. The factor loading for each variable in 1990 was: .815 for median individual income, .892 for median household income, .742 for the proportion of the adult population with a college degree, and .848 for the proportion of the population designated as living below the poverty line. The factor loading for each variable in 2000 was .811 for median individual income, .905 for median household income, .736 for the proportion with a college degree, and .837 for the proportion in poverty.

Findings

Spatial Variation in Crime Rates within Nonmetropolitan Counties

A regression model is used for the analysis of spatial variations in crime rates among nonmetropolitan counties. In this analysis, the crime rate for various offenses, as a dependent variable, is an average of three years from 2000 to 2002. Social structural factors, as derived from the 2000 census are the independent variables. The results of the analysis are shown in Table 1 on the next page.

Family disruption was associated with the spatial disparity of both violent crime and property crime in nonmetropolitan counties. More specifically, family disruption was associated with an increase in violent crime, and the effect was stronger on robbery and aggravated assault. In general, family disruption had a larger impact on violent than on property crime.

Table 1 Regression Coefficients for analysis of crime rates in nonmetropolitan counties

Social Structural Variables[b]	Violent (Log)[a]	Property (Log)	Murder (Log)	Crime Forcible rape (Log)	Rate Robbery (Log)	Variable[c] Aggravated Assault (Log)	Burglary (Log)	Larceny -Theft (Log)	Motor vehicle theft (Log)
(Constant)	4.06***	6.00***	-2.27***	-3.18***	-2.86***	2.04***	2.88***	4.08***	1.36***
FD index[3]	0.29***	0.13***	0.167**	0.08	0.38***	0.34***	0.15***	0.10***	0.15***
SES index	0.01	0.17***	-0.11**	0.14**	-0.02	0.04	0.10***	0.23***	0.13**
Population (Log)	0.10***	0.14***	0.17***	0.47***	0.49***	0.22***	0.18***	0.23***	0.29***
Urban populat-ion, %	0.58***	0.80***	-0.04	0.92***	0.91***	0.70***	0.48***	1.10***	0.53***
GINI	0.99***	0.38**	1.37***	0.84***	2.31***	0.96***	0.64***	0.48**	0.45*
Owner occupied house-holds, %	0.03	-0.18	1.25*	1.17	-1.03	0.86	1.70***	0.48	0.35
Unemploy-ment %	0.10***	0.10***	-0.01	0.15***	-0.03	0.14***	0.12***	0.12***	0.10***
MIDWEST	-0.13**	-0.05	-0.30***	0.07	-0.36***	-0.22**	-0.13**	-0.05	-0.06
Population density (Log)	-0.06*	0.01	0.10**	-0.03	0.13**	-0.09**	0.01	0.01	-0.03
R-square	**.375**	.388	.240	.260	.573	.318	.260	.322	.259
Adj. R-square	**.371**	.384	.235	.256	.570	.314	.256	.318	.255

p<.05,** p<.01, ***p<.001;

a. Dependent variable is the logarithmic transformation of the crime rate.

b. Social structure is in 2000.

c. Crime rate is three year average from 2000-2002.

Higher socioeconomic status was associated with increased property crime. For the violent crime rate, the results were mixed. The murder rate decreased and the forcible rape rate increased in those counties with higher socioeconomic status. Robbery had no association with socioeconomic status. Among the four property crimes, socioeconomic status showed its strongest effect on larceny-theft in nonmetropolitan counties. Social disorganization theory anticipates a negative effect of socioeconomic status on crime, which considers community resources as an important factor in favoring social integration. However, for the most part, this assumption was not supported by the results in this study, except for murder and robbery.

The results of the effect of population size were consistent with expectations from social disorganization theory. Population size had positive effects for both violent and property crime. In this analysis, the largest effect of population size was on forcible rape and robbery.

Ethnic heterogeneity predicted higher rates for both property and violent crime. The effect of ethnic heterogeneity was larger on violent crimes, such as robbery and murder, than on property crime.

A lower proportion of owner occupied households is supposed to indicate higher residential instability. Residential instability, as represented by the proportion of owner occupied households, does not have an influence on either violent crime or property crime. However, when its effect is examined for specific crimes, residential stability did predict an effect for both murder and burglary.

Generally, the unemployment rate in nonmetropolitan counties was associated with rates of both violent crime and property crime, except for murder and aggravated assault. When applied to urban settings, social disorganization theory assumes that population density lessens the amount of cohesion or social integration, hence, increasing crime. The anticipated positive sign of population density on crime was not found in this study, however. In this analysis, population density was negatively related to violent crime, but was not significantly related to property crime. Specifically, the spatial disparity effect of population density on violent crime was variable. Population density had a negative spatial effect on aggravated assault, a positive spatial effect on murder, and a positive spatial effect on robbery.

Social Change and Crime within Nonmetropolitan Counties

This analysis estimates the effect of social structural and socioeconomic change on crime rates for the time period between 1990 and 2000 (see Table 2). Social disorganization theory assumes that the relationship between various social and economic dimensions of a place and crime is linear. It is also assumed to be linear in this analysis. The second assumption is that crime rates are increasing or decreasing in a way that represents a linear or straight-line trend. According to the FBI *Uniform Crime Reports*, crime rates for metropolitan counties were decreasing from 1990 to 2000, and for micropolitan counties as well. However in rural counties, there was no difference in crime rates for this period. I extend this analysis to 1990, and assume that there is a decreasing crime trend in both metropolitan and nonmetropolitan (micropolitan and rural) counties. Based on these assumptions then, the crime rate (in 2000) was defined as:

Crime rate (in 2000) = crime rate (in 1990)+ changes of crime rate.

In this expression, the crime rate in 2000 was measured by a three year average of crime from 2000 to 2002. I assume that the crime rate in 1990 was a function of social structural and economic factors in 1990. Hence, I can estimate the crime rate in 1990 by the social and economic dimensions of counties found in the 1990 census.

The model related crime rates in 2000-2002 to the social structural and socioeconomic characteristics in 1990 and changes in both types of characteristics between 1990 and 2000. The regression analysis results for the effects of social change on crime are presented in Table 2 on the next page. The results are compared with those is the last section (see Table 1).

The spatial effect of family disruption on crime rates in 1990 was similar to the spatial effect of family disruption on crime rates in 2000. Family disruption in 1990 had a higher spatial effect on violent crime and property crime than in 2000, which means that family disruption had a larger spatial disparity effect on crime rate in 1990.

The effect of socioeconomic status on violent and property crime between 1990 and 2000 was not much different. However, SES had a significant influence on property crime during this time period.

Table 2 Regression coefficients of crime rates and social change in nonmetropolitan counties

Social Structural Variables[a]	Violent (Log)[b]	Property (Log)	Murder (Log)	Crime Rate Variables[c] Forcible rape (Log)	Robbery (Log)	Aggravated Assault (Log)	Burglary (Log)	Larceny -Theft (Log)	Motor vehicle theft (Log)
(Constant)	4.71***	6.23***	-1.05***	-1.90***	-3.22***	3.54***	4.47***	4.86***	2.299***
FD index	0.36***	0.20***	0.21***	0.17**	0.52***	0.46***	0.227***	0.19***	0.234***
SES index	-0.02	0.18***	-0.17***	0.12*	0.00	0.02	0.09**	0.25***	0.112***
Population (Log)	0.03	0.10***	0.15**	0.44***	0.46***	0.13**	0.15***	0.18***	0.216***
Urban populat-ion, %.	0.74***	0.96***	-0.11	1.08***	1.13***	0.76***	0.41***	1.21***	0.600***
GINI	0.75***	0.17	1.18***	0.46	2.05***	0.41	0.20	0.12	0.024
Unemploy-ment, %	0.11***	0.00	0.01*	0.00	0.01*	0.01***	0.004*	0.001	0.006***
MIDWEST	-0.05	0.12***	-0.05	0.19***	-0.06	0.16***	0.12***	0.16***	0.133***
Population density (Log)	-0.06*	-0.05	-0.27***	-0.03	-0.32***	-0.10	-0.12*	-0.04	-0.005
Population Change, %	0.01***	0.01	0.08*	-0.05	0.10**	-0.06	0.03	0.02	-0.005
FD change	0.12**	0.06	-0.02	0.04	0.19**	0.13*	0.06	0.03	0.047
SES change	-0.08	0.15***	-0.03	0.36***	0.06	-0.06	0.19***	0.21***	0.017
URBAN pop. change	0.39*	0.36**	0.25	0.12	0.74**	0.07	-0.33	0.24	0.171
GINI Change	1.32**	0.75*	1.21	2.07**	1.83*	2.02**	1.24**	1.10*	2.012***
Unemploy-ment change	0.05	0.07**	-0.10*	0.06	-0.07	0.14**	0.13***	0.12**	0.086*
SES* Unemp change	0.06***	0.05***	-0.00	0.10**	0.04	0.09**	0.07***	0.07***	0.077**
Unemp* SES change	0.01	0.09**	0.07	0.35***	0.11	-0.03	0.10*	0.05	0.064
R-square	.4108	.412	.250	.289	.581	.345	.275	.340	.286
Adj. r-square	.401	.405	.242	.281	.576	.338	.267	.333	.278

p<.05,** p<.01, ***p<.001;

a. Social structure is in 1990, and change is the difference between 2000 and 1990.

b. Crime rate is three year average from 2000-2002.

c. Dependent variable is the logarithm transformation of crime rate.

Table 2 also displays the effects of change on crime rates in nonmetropolitan counties. Specifically, an increase in population size, the family disruption index, the proportion of the population that is urban, and ethnic heterogeneity led to an increase in the 3-year average (2000-2002) for violent crime. Also, an increase in SES, the proportion of the population that is urban, ethnic heterogeneity, and the proportion of the population that is unemployed all led to an increase in the property crime rate, based on the 3-year average from 2000-2002.

For specific crimes, similar results were found. An increase in population size was associated with an increase in the rate of murder and robbery. An increase in the Family Disruption Index increased the rate of robbery and aggravated assault. SES increased forcible rape, burglary, and larceny-theft. An increase in the urban population predicted an increase in robbery. Ethnic heterogeneity predicted an increase in the rates of forcible rape, robbery, aggravated assault, burglary, larceny-theft, and motor-vehicle theft. A higher unemployment rate predicted a decrease in murder, and increases in assault, burglary, larceny-theft, and motor vehicle theft.

Table 2 also showed a significant interaction effect of SES and change in the unemployment rate on crime rates in nonmetropolitan counties. Results from the regression analysis indicate that SES and a change in the unemployment rate had a positive effects on both violent and property crime rates. The analysis also found that an increase in unemployment will have a larger effect on reducing social control and increasing social disorganization in more wealthy counties. I also assessed the interaction of the unemployment rate and socioeconomic status and its effect on property crime. The results show that when socioeconomic status rose, counties with a higher proportion of unemployed showed a higher rate of forcible rape and burglary.

Discussion and Conclusions

Basically, the results show a consistent pattern, which is indicators that are supposed to represent socially disorganized places are predictive of higher crime rates. Family disruption, larger population size, residential instability, ethnic heterogeneity, and unemployment explain much of the variance in crime rates, both spatially and temporally. Nonetheless, the factor of resource disadvantage did not show an expected relationship with crime, that is, it did not necessarily lead to a lack in the kind of social cohesion that controls crime.

Social disorganization theory originally was based on the assumption that long term

social processes are exhibited through the ecology of places (Bursik & Grasmick 1993; Jobes et al. 2004). Cross-sectional studies abound because there is less longitudinal data available. However, even a look at the short term impacts of social disorganization is useful for understanding how social and economic change influences crime in the rural context. A ten year change of social structure and socioeconomic status from 1990 to 2000 showed results similar to those for spatial or cross-sectional variations in crime rates. In short, the analysis indicates that change affects the social organization of a community such that crime rates go up.

In general, the results show that the perspective of social disorganization can be used in the analysis of crime in rural America. Several major conclusions emerge from the empirical analysis. First, the results in this study show that residential instability in nonmetropolitian counties will increase crime. It is significant that residential instability will increase violent crime, such as murder and burglary, more so than either forcible rape or robbery. Theoretically, residential instability leads to lesser social integration and social control (Osgood & Chambers 2000). As well, the density of acquaintanceship is lower in a community with higher residential instability. Hence, the consequence of residential instability is a higher crime rate (Freudenburg 1986). It also takes time to integrate newcomers into existing community organizations (Barnett & Mencken 2002). Residential instability can occur because of various forms of community development, such as highways, retirement communities, and tourism. Those activities introduce new and more mobile populations into rural communities, which can reduce previously established forms of social control (Donnermeyer 2007; Rephann 1999).

Second, the results suggest that long term relationships in a local community between residents are important in preventing violent crime. As mentioned before, parochial networks are the broader local interpersonal networks and the interlocking of local institutions that help residents to be integrated into the community, which the data seems to prove out.

Third, my results show that family disruption plays an important role in predicting violent crime. A place with a higher degree of family disruption leads to a lack of social cohesion between adults and youth in particular, and possibly between adults and youth from two parent versus single parent families. As well, family disruption also shows the importance of other social relations in a community. Single parent and separated parents represent fewer networks by which children communicate and interact with adults. Hence, a higher ratio of adults to children is regarded as a better environment for the supervision

of children and adolescents (Osgood and Chambers 2000). Both indicate that two parent households are better able to provide social control that reduces criminal behavior by youth. Specifically, these households provide greater opportunity for youth to participate in local organizations, in part because married parents themselves are more involved in local organizations of various kinds. A higher level of family disruption in a community may interfere with the individual and collective efforts of families to link youth to the wider society through institutional means such as schools, religion, and sports (Sampson 1986). The second function of families is that they play a role in helping to supervise youth at the neighborhood level and the surveillance of houses and other properties in a localized area. Studies show that married families are more willing to establish and maintain contact with their neighbors. Marital disruption is also an indicator of overall social disorganization (Blau & Blau 1982; Sampson 1986). Blau and Blau (1982) concluded that divorced and separated families in a population are indicative of much instability and conflict in a community's network of interpersonal relations.

Fourth, in this study, socioeconomic status was indicated by education, income, unemployment and poverty. The socioeconomic status of a community had a mixed effect on the social organization of a community. As expected, and as indicated by social disorganization theory, a community with more social and economic resources will facilitate a community's ability to better organize resources to control crime. In this study, socioeconomic status did exactly that for rates of murder and aggravated assault, however, for the other offenses, socioeconomic status did not show an improvement in the social control of crime. In this case, the perspective of Liepins (2000) of the contested meanings of community among residents is useful in explaining this result. According to Liepins (2000), the social organization of a community represents a kind of expression of localized power which indicates the interests of competing groups and individuals. Hence, the social organization of a community is segmented when there is substantial inequality or unemployment. From this viewpoint, the only crimes that are controlled or paid attention to are those which might threaten the established order of more powerful groups in a community, and all other offenses are given lower priority relative to the investment of community resources, such as what the police pay attention to.

According to social disorganization theory, socioeconomic status affects a community's ability to bring resources to bear on various processes of social control, from school to police to youth groups. The effects of socioeconomic status, however, show inconsistent results on crime rates in nonmetropolitan counties, beased on this and a number of other studies (Barnett & Mencken 2002; Jobes et al. 2004; Osgood &

Chambers 2000; Rephann 1999). These results are dissimilar from findings in urban settings (Cao 2004). Bouffard and Muftić (2006) found that poverty has a negative effect on the social control of violent crime, such as aggravated assaults and other assaults. Unemployment had a positive effect on the social control of aggravated assaults, robbery and rape. Rephann (1999) explained that socioeconomic status always coexists with social inequality and unemployment. Osgood and Chambers (2000) thought that areas with low socioeconomic status also have higher residential instability and ethnic heterogeneity.

The results here show that resource advantaged nonmetropolitan counties leads to more social control of violent crime (less violent crime), but less control of property crime (more property crime). The literature shows that many rural counties are economically disadvantaged. However, the connection between different kinds of socio-economic indicators in rural counties was stronger in controlling only one class of crime. Hence, the assumption from social disorganization theory of better social integration in a resource advantaged community may be true for urban areas across crime generally, but may not necessarily apply to rural areas.

Limitations of Study

There are several limitations to this study. For example, the discussion by Osgood and Chambers (2000) about the advantages and disadvantages of county-level study of crime is likewise applicable to this study. They point out that the concept of community does not generalize very well to rural settings where population density is much lower and where most counties include several distinct communities. Yet, counties have their own governmental structures and internal economic dynamics that indicate to some degree they are indeed a type of social system. As well, the county is a convenient unit of analysis for the study of rural crime because of the availability of data across a large number of sites. Hence, in lieu of a better unit for statistical examinations of the social and economic dimensions of places and crime, the county remains the best and sometimes only option.

How do the disadvantages of the selection of county bias the results? Because we will treat the characteristics of the same county as the characteristics of a whole community, variation between places within a county is unknown and is a possible source of error. It is possible to justify that if a meaningful level of variation in crime and its predictors occurs across counties, then the researcher can observe the statistical associations, test

hypotheses and infer back to various theoretical relationships. Another justification for using counties is the claim that the relationships between crime rates and various structural variables are robust across city, county, and state levels of aggregation (Land, McCall & Cohen 1990).

Researchers are always concerned about the accuracy of official crime records. It is possible that in nonmetropolitan counties, the police are less likely to deal with crime by formally arresting an individual, and more likely to find a solution which is informal, such as returning custody of a juvenile who was vandalizing town property to the parents, who in turn, make the adolescent repair the damage. Hence, no official recording of the crime occurs (Weisheit et al. 2006). At this point, it is unknown what kind of crime data is more appropriate in representing a lack of social control in order to test social disorganization theory. Osgood and Chambers (2000) suggest that, besides the arrest data they used, findings have been convergent through "citizen calls for police assistance", "self-report of victims" and "self-reports of offenders."

Another concern of this study is that county-level UCR figures might include systematic bias within the imputed crime data of the National Archive of Criminal Justice Data (Maltz & Targonski 2002 2003; Lott & Whitley 2003). It is inevitable that all crime data has measurement error, and that the largest errors may be in counties with small populations and with smaller and under-resourced agencies who do not participate or participate sporadically in the UCR. By excluding the smallest counties, using the coverage indices provided by the National Archive on Criminal Justice Data, pooling data from multiple years, including as many nonmetropolitan counties as possible in the analysis, and examining the data statistically by employing several forms of analyses, these shortcomings can be mitigated to some degree.

Suggestions for Future Research

There are four suggestions for the future study of social structure, informal social control, and crime in nonmetropolitan counties. The first recommendation is for research to use multiple levels for the unit of analysis. As the conclusions in this study reveal, it is a mistake to assume that all rural communities are alike or homogeneous in their characteristics. A multilevel study can not only better solve problems of auto-correlation, but also provide new insights about how a community is nested by higher-level or larger scale social structures. This kind of study assumes that some of the characteristics at a higher level or larger unit of analysis (such as a region) have an effect on the lower or

smaller units of analysis relative to informal social control as expressed through crime rates.

The second suggestion is a different scale of study, such as city or neighborhood. Although a county-level study provides a ready application of social disorganization theory because of the researcher's ability to develop a large sample size, the kind of research completed here also shows the limitation of conducting such an analysis. Hence, it is possible to apply social disorganization theory to cross-cultural studies of crime in rural communities of different countries, or of carefully selected communities that are comparable in some fashion, such as the examination of two rural Australian communities to examine the impact of the Aboriginal population on crime by Jobes et al (2005).

The third suggestion is the need for more longitudinal data for county level studies of change and rural crime. This kind of study will need to find a way to collect valid information that represents several decades of crime data and information on the social and economic indicators of rural places. I believe that this kind of study would be highly significant in unraveling some of the causal relationships between social structural and socioeconomic characteristics, change, and crime.

The last recommendation is to study the effect of rurality on crime rates in the city. The question of whether additional variance in urban crime rates can be explained by the characteristics of their surrounding rural hinterland is a new question that has never been examined in the criminology literature. Yet, criminologists have long presumed that rural communities and their rates of crime are influenced by proximity to urban places. Certainly, if the effect is one way, it is probably also reciprocal.

References

Anderson, J. F. & Laronistine D. 2002. *Criminological Theories: Understanding Crime in America.* Lanham, Maryland: University Press of America.

Arthur, J. A. 1991. Socioeconomic predictors of crime in rural Georgia. *Criminal Justice Review 16*, 29-41

Bachman, R. 1992. Crime in nonmetropolitian America: A national accounting of trends, incidence rates, and idiosyncratic vulnerabilities. *Rural Sociology, 57,* 546-560.

Barnett, Cynthia and F. Carson Mencken. 2002. Social disorganization theory and the contextual nature of crime in nonmetropolitian counties. *Rural Sociology, 67*, 372-393.

Blau, J. & Blau P.M. 1982. The cost of inequality: Metropolitan structure and violent crime. *American Sociological Review, 47,*114-129.

Blau, P. M. 1977. *Inequality and Heterogenity*. New York: Macmillan.

Bollen, Kenneth A., 1989. *Structural Equations with Latent Variables.* New York: John Wiley & Sons.

Bouffard, L. A. &Muftić, L. R. 2006. The rural mystique: Social disorganization and violence beyond urban communities. *Western Criminology Review* 7, 56-66.

Brantingham, P. J. & Brantingham, P. L. 1981. *Environmental Criminology*. Beverly Hills, CA: SAGE Publications.

Bursik, R. J. & Grasmick, H. G. 1993. *Neighborhoods and Crime: The Dimensions of Effective Community Control.* NY: Lexington Books.

Bursik, R. J., Jr., 1986. Ecological stability and the dynamics of deliquency. Pp. 35-66 in A. J. Reiss, Jr. & M. Tonry (eds.), *Community and Crime*. Chicago: The University of Chicago Press.

Cancino, J. M. 2005. The utility of social capital and collective efficacy: Social control policy in nonmetropolitian settings. *Criminal Justice Policy Review 16,* 287-318.

Cao, L. 2004. *Major Criminology Theories: Concepts and Measurement*. Belmont, CA: Wadsworth.

Carcach, C. 2000a. *Regional Development and Crime*. Australian Institute of Criminology: Trends & Issues in Crime and Criminal Justice. July, No.160.

Carcach, C. 2000b. *Size, Accessibility and Crime in Regional Australia*. Australian Institute of Criminology: Trends & Issues in Crime and Criminal Justice. November, No.175.

Davies, G. 2006. *Crime, Neighborhood, and Public Housing.* NY: LFB Scholarly Publishing LLC.

Deller, S. C. & Deller, M. A. 2010. Rural crime and social capital. *Growth and Change, 41,* 221-275.

Donnermeyer, J. F. 2007. Rural crime: Roots and restoration. *International Journal of Rural Crime*, *1,* 2-20.

Donnermeyer, J. F., Jobes, P., &Barclay, E. 2006. Rural crime, poverty, and community. Pp. 199-218 in W.S. DeKeseredy & B. Perry (eds.), *Advancing Critical Criminology: Theory and Application.* Oxford: Lexington Books.

Donnermeyer, J. F. & DeKeseredy, W.S. 2008. Toward a rural critical criminology. *Southern Rural Sociology*, *28,* 4-28.

Durkheim, E.. 1897. *Suicide: A Study in Sociology.* John A. Spaulding (ed.); George Simpson (translator), 1997. New York: The Free Press.

Felson, M. 1998. *Crime and Everyday Life.* Thousand Oaks, CA: Pine Forge Press.

Fischer, C. S. 1980. The spread of violent crime from city to countryside, 1955 to 1975. *Rural Sociology, 45,* 416-434.

Freudenburg, W. R. 1986. The density of acquaintanceship: An overlooked variable in community research. *American Journal of Sociology, 92,* 27-63.

Freudenburg, W. R. and Jones, R.E. 1991. Criminal behavior and rapid community growth: Examining the evidence. *Rural Sociology, 56,* 619-645.

Hunter, L. M., Krannich, R.S., & Smith, M.D. 2002. Rural migration, rapid growth, and fear of crime. *Rural Sociology, 67,* 71-89.

Jacoby, J. E. 1994 (2nd edition). *Classics of Criminology*. Prospect Heights: Waveland Press.

Jobes, P. C. 1999. Residential stability and crime in small rural agricultural and recreational towns. *Sociological Perspectives, 42,* 499-524.

Jobes, P. C., Barclay, E.,Weinand, H. & Donnermeyer, J.F. 2004. A structural analysis of social disorganiztion and crime in rural communities in Australia. *The Australian and New Zealand Journal of Criminology, 37,*114-140.

Jobes, P. C., Donnermeyer, J.F. & Barclay, E. 2005. A tale of two towns: Social structure, integration and crime in rural New South Wales. *Sociologia Ruralis, 45,* 224-244.

Kaylen, M., & Pridemore, W.A. 2011. A reassessment of the association between social disorganization and youth violence in rural areas. *Social Science Quarterly,92,* 978-1001.

Kowalski, G. S. & Duffield, D. 1990. The impact of the rural population component on homicide rates in the United States: A county-level analysis. *Rural Sociology, 55,* 76-90.

Krannich, R. S., Berry, E.H. & Greider, T. 1989. Fear of crime in rapidly changing rural communities: A longitudinal analysis. *Rural Sociology, 54,* 195-212.

Krannich, R. S., Greider, T. & Little, R.L. 1985. Rapid growth and fear of crime: A four-community comparison. *Rural Sociology, 50,* 193-209.

Land, K.C., McCall, P. L. & Cohen, L.E. 1990. Structural covariates of homicide rates: Are there any invariances across time and social space. *American Journal of Sociology, 95,*922-963.

Lee, M. R., Maune, M.O. & Ousey, G.C. 2003. Social isolation and lethal violence across the metro/nonmetro divide: The effects of socioeconomic disadvantage and poverty concentration on homicide. *Rural Sociology, 68,* 107-181.

Liepins, R. 2000. New energies for an old idea: reworking approaches to 'community' in contemporary rural studies. *Journal of Rural Studies, 16,* 23-35.

Lott, Jr., J. R. & Whitley, J. 2003. Measurement error in county-level UCR data. *Journal of Quantitative Criminology, 19,*185-198.

Maltz, M. D. & Targonski, J. 2002. A note on the use of county-level UCR data. *Journal of Quantitative Criminology, 18,* 297-318.

Maltz, M. D. & Targonski, J. 2003. Measurement and other errors in county-level UCR data: A reply to Lott and Whitley. *Journal of Quantitative Criminology, 19,*199-206.

Osgood, D. W. & Chambers, J.M. 2000. Social disorganization outside the metropolis: An Analysis of rural youth violence. *Criminology, 38,* 81- 116.

Reisig, M. D. & Cancino, J.M. 2004. Incivilities in nonmetropolitian communities: The effects of structural constraints, social conditions, and crime. *Journal of Criminal Justice, 32,* 15-29.

Reiss, A. J., Jr. 1986. Why are communities important in understanding crime. Pp. 1-33 in A. J. Reiss, Jr. & M. Tonry (eds.), *Community and Crime.* Chicago: The University of Chicago Press.

Rephann, T. J., 1999. Links between rural development and crime. *Papers in Regional Science, 78,* 365-386.

Sampson, R. J. 1984. Group size, heterogenity, and intergroup conflict: A test of Blau's inequality and heterogenity. *Social Forces, 62,* 618-639.

Sampson, R. J. 1986. Crime in cities: The effects of formal and informal social control. Pp. 271-312 in A. J. Reiss, Jr. & M. Tonry (eds.), *Community and Crime.* Chicago: The University of Chicago Press.

Sampson, R. J. & Groves, W.B. 1989. Community structure and crime: Testing social disorganization theory. *American Journal of Sociology, 94,* 774-802.

Sampson, R J., Morenoff, J.D. & Gannon-Rowley, T. 2002. Assessing 'neighborhood effects': Social process and new directions in research. *Annual Review of Sociology, 28,* 443-78.

Sampson, R. J., Raudenbush, S.W. & Earls, F. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science* (New series), *277*(5328, August 15), 918-924.

Seydlitz, R., Laska, S., Spain, D., Triche, W.C. & Bishop, K.L. 1993. Development and social problems: The impact of the offshore oil industry on suicide and homicide rates. *Rural Sociology, 54,* 93-110.

Silver, E. 2000. Extending social disorganization theory: A multilevel study approach to the study of violence among persons with mental illness. *Criminology, 4,* 1043-1074.

Spano, R. & Nagy, S. 2005. Social guardianship and social isolation: An application and extension of lifestyle/ routine activities theory to rural adolescents. *Rural Sociology, 70,* 414-437.

U.S. Dept. of Justice, Federal Bureau of Investigation. UNIFORM CRIME REPORTING PROGRAM DATA [UNITED STATES]: COUNTY-LEVEL DETAILED ARREST AND OFFENSE DATA, 2000 1001 2002. [Computer file]. ICPSR03167-v4. ICPSR03451-v4. ICPSR3721-v2. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 2006-01-16.

Van Dijk, J. M. 1999. The experience of crime and justice. Pp 25-42 in G. Newman (ed.), *Global Report on Crime and* Justice. New York: Oxford University Press.

Vold, G. B. 1941. Crime in city and country areas. *Annals of the American Academy of Political and Social Science, 217* (Crime in the United States, Sep.), 38-45.

Warner, B. D. 2007. Directly intervene or call the authorities? A study of forms of neighborhood social control within a social disorganization framework. *Criminology, 45,* 99-129.

Weisheit, R. A. & Donnermeyer, J.F. 2000. Change and continuity in crime in rural America. Pp. 309-58 in G. LaFree, J. F. Short, R. J. Bursik Sr., & R. B. Taylor (eds.), *Criminal Justice 2000 Volume 1: The Nature of Crime.* Washington, DC: U.S. Department of Justice, National Institute of Justice.

Weisheit, R. A., Falcone, D.N. & Wells, L.E. 2006 (3rd edition). *Crime and Policing in Rural and Small-Town America.* Prospect Heights, IL: Waveland Press.

Wells, L. E. & Weisheit, R.A. 2004. Patterns of rural and urban crime: A county-Level comparison. *Criminal Justice Review, 29,* 1-22.

Wiles, P. 1999. Introduction, in G. Dingwall & S.R. Moody (eds.), *Crime and Conflict in the Countryside*. Cardiff: University of Wales Pres.

Wilkinson, K. P. 1984a. Rurality and patterns of social disruption. *Rural Sociology, 48,* 23-36.

Wilkinson, K.P. 1984b. A research note on homicide and rurality. *Social Forces, 63,* 445-452.

Wilkinson, K. P., Reynolds, R. R. Jr., Thompson, G. & Ostresh, L.M. 1984. Violent crime in the Western energy-development region. *Sociological Perspectives, 27,* 241-256.

Wood, A. L. 1942. Social organization and crime in small Wisconsin communities. *American Sociological Review, 7,* 40-46.